

BACCHARIS SECT. BACCHARIDASTRUM (COMPOSITAE: ASTEREA),
INCLUDING TWO MONOECIOUS AND ONE DIOECIOUS SPECIES

Guy L. Nesom

Department of Botany, University of Texas, Austin 78713, U.S.A.

With the recognition of a monoecious species in a genus of plants previously regarded as strictly dioecious (Nesom, 1988), the biological circumscription of Baccharis becomes significantly broader. This new view of the genus also solidifies the rationale for a taxonomic decision relating to another group of species. In this paper, I reinstate in Baccharis two monoecious species from South America and include a closely related but dioecious species to constitute a new section of the genus, sect. Baccharidastrum.

Cabrera (Notas Mus. La Plata, Bot. 2:175-177. 1937) segregated the genus Baccharidastrum from Baccharis and Conyza on the basis of its heterogamous heads borne on monoecious plants. Cuatrecasas (1986), Espinar (1973), and Teodoro (1958) also have recognized this genus, including it in the subtribe Baccharidinae. Cuatrecasas (1969) characterized it by the following features: monoecious; style branches of the feminine flowers short and obtuse; style branches of the masculine flowers oblong-lanceolate, without stigmatic bands, and dorsally hirsute along the whole branch; convex, naked receptacles; and 3-nerved leaves. Most significantly, since the other characteristics are found elsewhere in Baccharis, each head always has a large number of filiform, eligulate pistillate flowers with a few, central, "pseudohermaphroditic" flowers (tubular, 5-lobed, morphologically hermaphroditic but staminate with sterile ovaries). The achenial pubescence, also, is particularly distinctive, as noted by Cuatrecasas and described below.

Two additional species of Conyza (C. notobellidiastrum Griseb. and C. rivularis Gardn., minimally if at all distinct from each other) were subsequently added to Baccharidastrum (Herter. Revista Sudamer. Bot. 6:104. 1939). However, the specimens I have examined of both of these species have heterogamous heads with central, completely fertile, hermaphroditic flowers and their floral and fruit morphology is very different from that of Baccharidastrum. I see no reason to remove them from Conyza.

The two species of Baccharidastrum (as recognized by Cabrera), which occur in Argentina, Brazil, Paraguay, and Uruguay, are very similar to one another and clearly closely related. Further, they appear to differ from Baccharis pingraea DC., a true dioecious species of Baccharis widespread in the southern half of South America, in very few characteristics, which are noted in the key below. These taxa are strikingly similar among themselves in habit, vegetative, capitular, and floral morphology, and particularly in the peculiar viscid-hispidulous pubescence of their achenes. I regard B.

pingraea as the sister taxa to the other two. I believe the two monoecious species are more similar to the probable ancestral form of Baccharis with heterogamous heads. However, whether they represent truly primitive and vestigial elements in the genus or have arisen from a dioecious ancestor remains to be demonstrated, although I believe the latter is more likely.

In summary, Baccharidastrum appears to be related directly to a traditionally recognized, dioecious species of Baccharis that does not itself appear to have particularly primitive features, and in my opinion it should not be segregated as a genus, leaving Baccharis paraphyletic. The following nomenclatural combinations reflect my conclusion that these taxa should be treated as Baccharis but recognized at the sectional rank as a natural group within that genus. The only other species of Baccharis known to be monoecious, B. monoica Nesom, has monogamous heads and numerous other morphological differences (including glabrous achenes) and is not closely related to the species dealt with here.

Baccharis sect. Baccharidastrum (Cabrera) Nesom, comb. et stat. nov.

Baccharidastrum Cabrera, Not. Mus. La Plata Bot. 2:175. 1937. Type species: Conyza triplinervia Less.

Sect. Baccharidastrum is characterized by the following characteristics: dioecious or monoecious; glabrous, weakly to strongly glutinous subshrubs; leaves strongly 3-nerved, even in linear-leaved forms; heads sessile to short-pedicellate in tight, terminal clusters; receptacles naked, convex to nearly flat; pistillate corollas apically fimbriate; achenes (0.7-) 0.9-1.0 mm long, 4(-6)-nerved, appearing hispidulous or puberulent with minute, erect, blunt-tipped to minutely stipitate, sometimes viscid-appearing hairs, with a small but prominent, white carpodium; pappus 1-seriate. Species of South America: Chile, Argentina, Uruguay, Paraguay, and Brazil, disjunct to Colombia.

Sect. Baccharidastrum includes three species: Baccharis pingraea DC. (a broad concept of this species, see comments below) and the two originally included by Cabrera in the genus Baccharidastrum. For the correct names in Baccharis, I rely on the essential synonymy published by Cabrera (1974, 1978).

1. BACCHARIS VULNEARIA Baker

Baccharis vulnearia Baker in Mart., Fl. Brasil. 6:75. 1882.

Conyza triplinervia Less., Linnaea 6:137. 1831. Not Baccharis triplinervia DC. 1836; not B. triplinervis Pers. 1807 or Baker 1881. Baccharidastrum triplinervium (Less.) Cabrera, Not. Mus. La Plata Bot. 2:177. 1937.

Baccharis serrulata DC., Prodr. 5:402. 1836. Not Pers. 1807.

Baccharis pseudoserrulata Teodoro, Contrib. Inst. Geobiol. Canoas 9:25. 1958.

2. BACCHARIS BREVISETA DC.

B. breviseta DC., Prodr. 5:402. 1836.

Conyza arguta Less., Linnaea 6:138. 1831. Not Baccharis arguta Pers. 1807 or Gill. ex Hook. & Arn. 1841. Baccharidastrum argutum (Less.) Cabrera, Not. Mus. La Plata Bot. 2: 177. 1937.

Cuatrecasas recognized a variety of this species, which appears to be disjunct from the main range to the south. It differs from the typical variety by narrower, frequently obtuse or subobtuse phyllaries, elevated, hemispherical receptacle, and leaf margins with subobtuse teeth. It is included in Baccharis by the following combination.

Baccharis breviseta var. colombianum (Cuatr.) Nesom, comb. nov.

Baccharidastrum argutum var. colombianum Cuatr., Webbia 24:232. 1969. TYPE: Colombia, Antioquia, San Jose de Cuerquia, 2 Jul 1958, M. de Garganta 2159 (Holotype: US).

3. BACCHARIS PINGRAEA DC.

Baccharis pingraea DC., Prodr. 5:420. 1836. B. serrulata var. pingraea (DC.) Baker in Mart., Fl. Brasil. 6:59. 1829.

Baccharis pingraea DC. var. angustissima DC., Prodr. 5:420. 1836. Referred to by Cabrera (1974) as "f. angustissima."

Pingraea angustifolia Cass., Dict. Sci. Nat. 41:58. 1826.

Baccharis angustifolia Desf., Cat. Hort. Paris. ed. 3:163. 1829. Not Michx. 1803.

Conyza montevidensis Spreng., Syst. Veg. 3:58. 1826. Not Baccharis montevidensis (Spreng.) Schultz-Bip. ex Lillo 1909.

Baccharis subpingraea Heering, Jahrb. Hamburg. Wissens. Anstalt 31:104. 1913. (including formas)

Baccharis stenophylla Espinar, Bol. Acad. Nac. Cienc., Cordoba 50: 241. 1973.

Baccharis medullosa DC., Prodr. 5:405. 1836.

Key to the species of Baccharis sect. Baccharidastrum

1. Monoecious, all heads with many eligulate pistillate flowers in outer series, with 3-7 tubular, central, morphologically hermaphroditic flowers; pistillate corollas 1.5-2.0 mm long, with a style 2.8-3.3 mm long with branches 0.1-0.2 mm long. (2)
 2. Leaves ovate-elliptic, basally attenuate to a petiole 5-10 mm long, the margins entire to obscurely serrulate B. vulnearia
 2. Leaves narrowly lanceolate-elliptic, without a clear petiole, the margins prominently serrate B. breviseta
1. Dioecious, the heads either pistillate or staminate; pistillate corollas 0.8-2.3 mm long, with a style 2.5-3.8 mm long with branches 0.3-0.9 mm long B. pingraea

Baccharis pingraea appears to be a highly variable species, even as deCandolle recognized, as he described two varieties of it. Var. angustissima, a narrow-leaved form (leaves 1-2.5 mm wide, entire or serrulate), tends to have longer pistillate corollas ((1.4-) 1.7-2.3 mm long); I have seen collections of this from Chile and Uruguay. Var. pingraea (var. latifolia DC.), the broad-leaved form, has leaves 4-16 mm wide and pistillate corollas that mostly fall in a shorter range of length (0.8-1.9 mm long); I have seen this from Chile, Argentina, Uruguay, and Brazil. Although I have studied relatively few specimens of the species, the two putative varieties appear to be intergrading. Espinar (1973) described Baccharis stenophylla Espinar from central Argentina, based on short, very narrow-leaved plants. and cited as synonyms B. subpingraea f. nana Heering and B. subpingraea f. pseudoulicina Heering. Cabrera (1978) recognized only a single, variable species with no varieties, although slightly earlier (1974) he recognized B. pingraea f. angustissima. Clearly, a more detailed study of this complex from a wider geographical perspective is warranted.

I include Baccharis medullosa as a synonym of B. pingraea, although it was recognized as distinct by Cabrera (1974, 1978) and Espinar (1975). Cabrera contrasted them in leaf shape and width (ovate-lanceolate to ovate, 10-30 mm wide in B. medullosa vs. lanceolate to linear-lanceolate, 2-9 mm wide in B. pingraea). Espinar separated them only on the basis of leaf width, giving almost the same dimensions as Cabrera. The two taxa have essentially the same geographic range and among the specimens I have examined, I cannot find a morphological discontinuity.

The illustration of Baccharis serrulata var. pingraea from Flora Brasiliensis shows a plant somewhat intermediate in leaf width between the narrow- and broad-leaved forms of B. pingraea and clearly shows the hispidulous achenes characteristic of that species (which

B. serrulata lacks). Although collections of B. pingraea have been fairly consistently identified and match the type (fiche!) as well as can be discerned from a photograph, deCandolle originally described the achenes as glabrous.

Espinar (1973) placed Baccharis pingraea, B. medullosa, and B. stenophylla in sect. Molinae (lectotypified by B. latifolia (Ruiz & Pavon) Pers.---see Cuatrecasas, 1967). Although they are more or less similar in habit, other species placed in sect. Molinae by Cuatrecasas and Espinar have achenes that are glabrous or sparsely pubescent with long, sharp-pointed hairs directed sharply upward.

ACKNOWLEDGEMENTS

I appreciate a loan of specimens from MO, help from Paul Boldt in locating literature, and comments on the manuscript by Fred Barrie and B. L. Turner.

LITERATURE CITED

- Cabrera, A. L. 1974. Baccharis, pp. 249-285 in A. Burkart (ed.), Flora ilustrada de Entre Rios (Argentina). Parte VI. Coleccion Cient. I.N.T.A., Buenos Aires.
- Cabrera, A. L. 1978. Flora de la Provincia de Jujuy, Republica Argentina. Parte X. Compositae. Inst. Nac. Tecn. Agropecuaria.
- Cuatrecasas, J. 1967. Revision de las especies Colombianas del genero Baccharis. Revista Acad. Colomb. Cienc. 13:5-102.
- Cuatrecasas, J. 1969. Baccharidastrum in Prima flora Colombiana. 3. Compositae - Astereae. Webbia 24:231-233.
- Cuatrecasas, J. 1986. Un genero nuevo de Astereae, Compositae, de Colombia. Anales Jard. Bot. Madrid 42:415-426.
- Espinar, L. A. 1973. Las especies de Baccharis (Compositae) de Argentina central. Bol. Acad. Nac. Cienc., Cordoba 50:173-305.
- Nesom, G. L. 1988. Baccharis monoica (Compositae: Astereae), a monoecious species of the B. salicifolia complex from Mexico and Central America. Phytologia 65:160-164.
- Teodoro L., I. 1958. Novum Index Baccharidinarum (Compositae). Contr. Inst. Geobiol. Canoas 9:3-35.